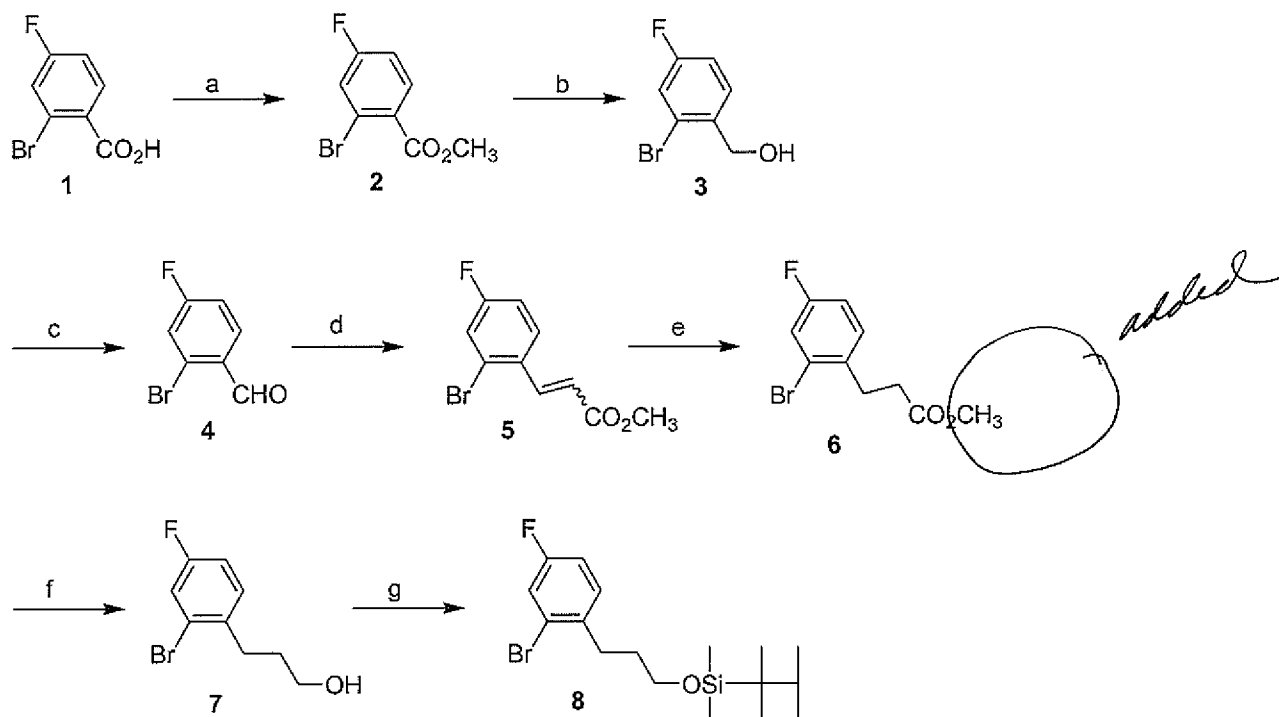
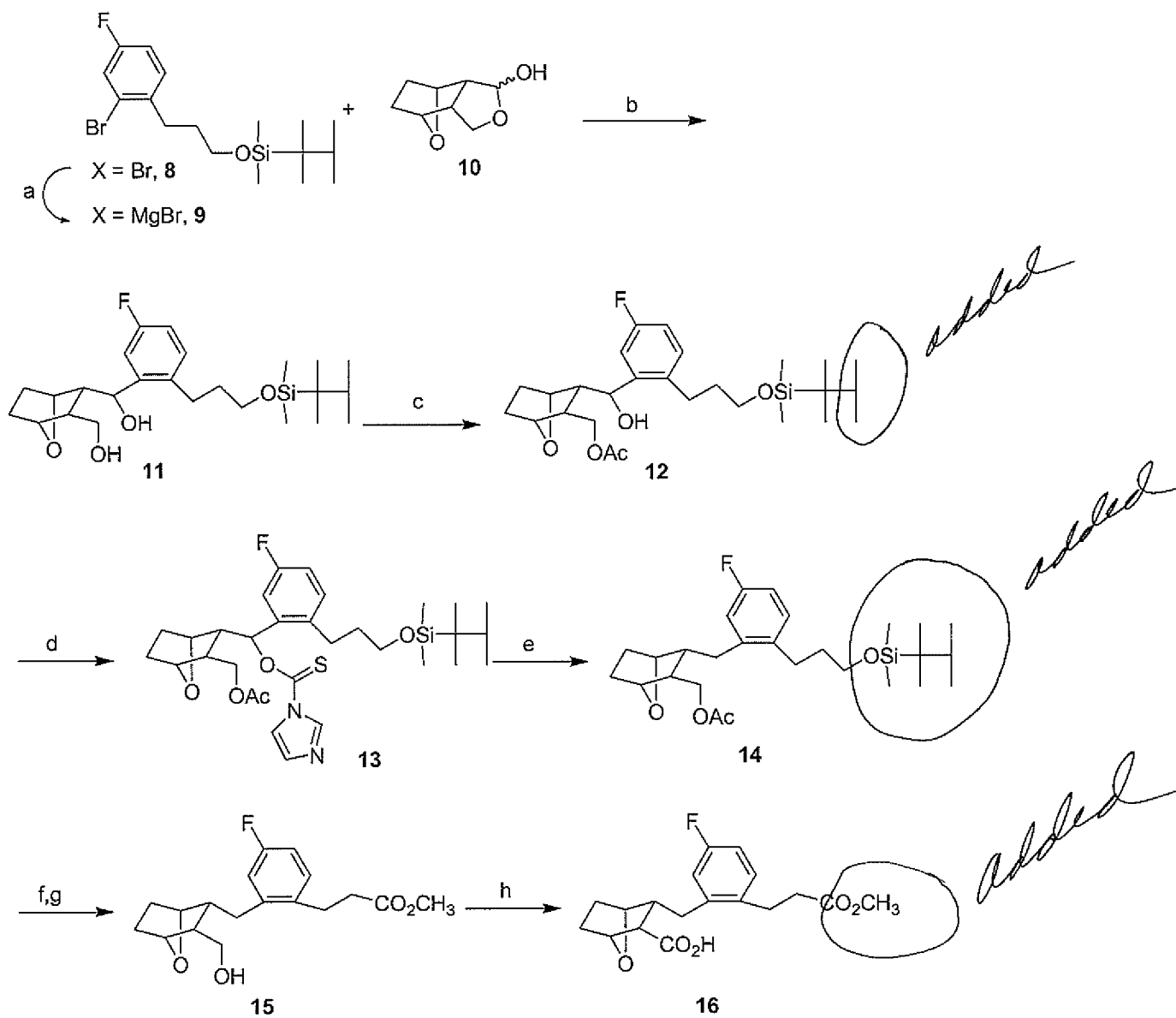


FIGURE 1



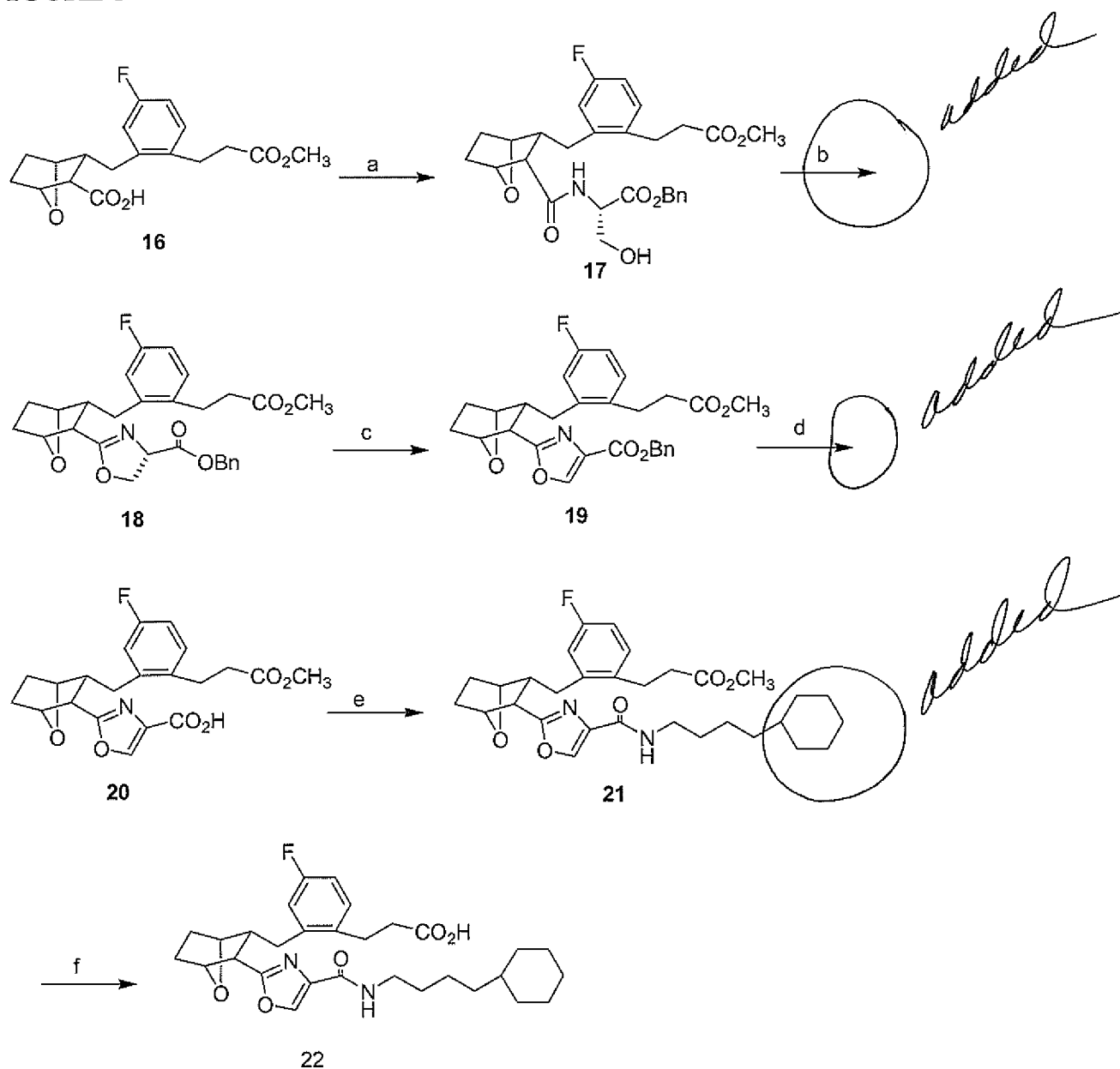
(a) CH₃I, DBU, acetone; (b) DIBAL, toluene -78 °C to rt; (c) PDC, MgSO₄, 4Å molecular sieves, CH₂Cl₂ 74% from **1**; (d) Ph₃PCHCO₂CH₃, toluene 95%; (e) (Ph₃P)₃RhCl, H₂, EtOH 80%; (f) DIBAL, toluene -78 °C to rt 99%; (g) Dimethylhexylsilyl chloride, DMAP, Et₃N, CH₂Cl₂ 83%.

FIGURE 2



(a) Mg, THF, 65 °C; (b) EtMgBr, 0 °C to rt 69%; (c) Ac₂O, pyridine 77%; (d) (Im)₂S, ClCH₂CH₂Cl, 60 °C 94%; (e) *n*-Bu₃SnH, AIBN, toluene, 110 °C 84%; (f) CrO₃, H₂SO₄, acetone; (g) MeOH, AcCl 88% for 2 steps; (h) CrO₃, H₂SO₄, acetone.

FIGURE 3



(a) L-serine benzyl ester hydrochloride, DCC, HOBT, Et₃N, THF 80% for 2 steps; (b) PPh₃, CCl₄, *i*-Pr₂NEt, CH₃CN 69%; (c) BrCCl₃, DBU, CH₂Cl₂ 0 °C 75%; (d) H₂, Pd(OH)₂/C, EtOAc 100%; (e) i. (COCl)₂, cat. DMF, CH₂Cl₂; ii. 4-cyclohexylbutylammonium chloride, Et₃N, CH₂Cl₂ 78%; (f) NaOH, aqueous THF, 95%.

FIGURE 4

